

Frequency of functional constipation in 3 different populations and its causative factors

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Abstract

Objective: To assess the frequency of constipation and its causative factors in 3 different populations, namely, the hospitalized patients admitted at Civil Hospital Karachi, their attendants and medical students.

Method: A sample size of 200 was divided into 3 groups: hospitalized patients, their attendants and medical students. Frequency of constipation was expected to be greater in patients, so 100 subjects were taken from this population; while from the other 2 populations only 50 subjects were taken. The subjects were diagnosed as constipated on the basis of Rome III criteria for functional constipation and their dietary habits and physical activity were also assessed.

Results: The frequency of functional constipation was found to be 53% in hospitalized patients, 52% in their attendants and 34% in medical students. Among the constipated individuals, 50.94% of hospitalized patients, 46.15% of attendants and 29.41% of medical students took laxatives for relief of their symptoms. Constipation was most prevalent among the age group of 18 to 30 years in all the 3 populations.

Conclusion: Constipation was fairly common in all 3 populations. Male to female ratio is almost equal. Physical inactivity and low fiber intake were prominent risk factors for constipation.

Keywords: Functional constipation; Students, Fibre intake, Rome III criteria (JPMA 61: 1149; 2011).

Introduction

Functional constipation is defined as the inability to defecate completely and spontaneously thrice or more in a week, without any secondary cause.¹ Constipation is a very common symptom and there are many opinions regarding the definition of constipation like hard and infrequent stools, the need for excessive straining, a sense of incomplete bowel evacuation, and excessive time spent on the toilet, but most people define constipation as straining and hard stools.²⁻⁴ Prevalence of constipation varies from 2 to 27%.¹ Its prevalence in Pakistan was found to be 1.61% in 2004.⁵

Constipation, is multi-factorial, and has physical inactivity, low fiber diet, low fluid intake, medications, low income, limited education, history of sexual abuse, irregular bowel habits and hormonal, systemic and neurological disorders as its contributory factors.⁶ It is more common in women than in men, in non-whites than in whites, in elderly than in young adults and in children than in adults.^{2,7}

Though, the symptoms associated with constipation are often mild and intermittent, they may become chronic, debilitating and difficult to treat. Some of the long term complications of constipation are inguinal hernia and hepatic encephalopathy. According to a study conducted in Fatima Hospital Karachi, Pakistan, 22% of inguinal hernia patients had chronic constipation.^{8,9}

Although many studies have been done to find out frequency of functional constipation in other countries, none is available from this part of the world. Hence, the objective of this study was to assess the frequency of constipation in different populations of Karachi. The 3 populations taken for study were hospitalized patients admitted in Civil Hospital Karachi, their attendants and medical students of Dow University of Health Sciences.

Patients and Methods

This descriptive cross sectional study was done on 200 subjects to assess the frequency of functional constipation in 3 different populations namely, the hospitalized patients admitted in Civil Hospital Karachi, their attendants and medical students of Dow University of Health sciences. The sample size was calculated by the Biostatistics department of Dow University of Health Sciences with a prevalence rate of 14.7%¹⁰ and confidence interval of 95% with a 5% chance of error. The sampling type was cluster sampling. Since the frequency of constipation was expected to be greater in patients, so 100 subjects were taken from this population; while from the other 2 populations only 50 subjects were taken. The project was approved from the Ethical Review Board of Dow University of Health Sciences. A written permission was also obtained from the Medical Superintendent of Civil Hospital, Karachi. An informed

consent was taken from the subjects and they were asked to fill the self administered questionnaire after assessing them for eligibility based on inclusion and exclusion criteria.

Inclusion criteria were all individuals between 18-60 years of age who wished to participate in the study voluntarily. Patients were selected only from medical wards of Civil Hospital Karachi. Exclusion criteria were age less than 18 or more than 60 years, individuals not willing to participate, pregnant and lactating women, any individual with known functional disorder like irritable bowel syndrome, or any congenital anomaly, for e.g., Hirschsprung disease, or history of gastrointestinal surgery were excluded.

The questionnaire was based on Rome-III criteria for functional constipation. In this questionnaire the subjects were asked about (1.) the frequency of bowel movements, (2.) hard stools, (3.) straining during defecation, (4.) feeling of incomplete evacuation, (5.) blocked stools and (6.) manual maneuvers required to facilitate defecation.¹¹ In addition the following questions were also asked to determine the cause of constipation. These included: (7.) daily fiber intake, (8.) physical activity and (9.) use of different laxatives including husks, lactulose, injections or any homeopathic medications. High fiber diet, according to Denis Burkitt, includes daily intake of fruits, vegetables, nuts and grains. Those individuals taking all four of these regularly were labeled as high fiber, those taking any 2 of them were labeled as medium and those taking any one of the mentioned above were considered to have low fiber diet.¹²

The subjects were diagnosed as constipated on the basis of diagnostic criteria given by Rome III, according to which they must meet any of the two conditions given below to be labeled as constipated: Straining, hard or lumpy stools, fewer than 3 defecations per week - at least often. Feeling of incomplete evacuation, sensation of anorectal obstruction and manual maneuvers used to facilitate defecation - at least sometimes.

Data was analyzed using statistical package for social sciences (SPSS) version 17.0 and frequencies were determined. Variables were defined on five options given in the questionnaire i.e., never or rarely, sometimes, often, most of the time and always.

Results

The frequency of 3 different populations namely the hospitalized patients, their attendants and medical students was found out using Rome III criteria for functional constipation as mentioned earlier. Table-1 shows the frequency with respect to gender differentiation among the 3 populations.

Out of the 53 constipated patients, 56.6% (30/53) had symptoms of constipation longer than six months. Out of the

Table-1: Frequency of functional constipation among the 3 populations* (in percentage).

	Males	Females	Total Frequency
Hospitalized Patients	23%	30%	53%
Medical students	18%	16%	34%
Attendants of Patients	24%	28%	52%

The subjects were diagnosed as constipated if they met any of the two conditions given below: (1.) Straining, (2.) hard or lumpy stools, (3.) fewer than 3 defecations per week - at least often. (4.) Feeling of incomplete evacuation, (5.) sensation of anorectal obstruction and (6.) manual maneuvers used to facilitate defecation - at least sometimes (11).

*Percentages were taken out of the total 100 patients, 50 students and 50 attendants.

Table-2: Frequency of functional constipation with respect to age (in percentage)*.

	18-30 years	31-40 years	41-50 years	51-60 years	Total
Hospitalized Patients	21%	7%	14%	11%	53%
Medical students	34%	0	0	0	34%
Attendants of Patients	18%	12%	10%	12%	52%

*Percentages were taken out of the total 100 patients, 50 students and 50 attendants.

Table-3: Daily Fiber intake of all the constipated individuals from the 3 populations*.

	Low Fiber Diet	Medium Fiber Diet	High Fiber Diet	Total
Hospitalized Patients	14%	30%	9%	53%
Medical students	10%	24%	0	34%
Attendants of Patients	8%	32%	12%	52%

High fiber diet refers to the one containing fruits, vegetables, nuts and grains, medium diet refers to the containing any 2 of the mentioned above, while low fiber diet refers to the one containing any one of the following (12).

*Percentages were taken out of the total 100 patients, 50 students and 50 attendants.

17 constipated students, 23.52% (4/17) had symptoms of constipation longer than six months. Out of the 27 constipated attendants, 74.07% (20/27) had symptoms longer than six months. Table-2, shows the frequency of constipation with respect to age, depicting that constipation is fairly common in the age group 18 to 30 years in all the 3 populations.

Out of a total of 53 constipated patients, 27(50.94%) took laxatives, which included husks (15.09%), lactulose (9.4%), injections (1.88%), homeopathic treatment (3.77%), and combination of husks along with medication (5.66%). Eight patients (15.09%) did not know the name of drug they were taking for constipation. Twenty six (49.05%) patients did not take laxatives.

Among the 17 constipated students, 5(29.41%) took laxatives, which included husks (5.88%) and lactulose (5.88%). Three students (17.64%) didn't know the name of the drug they were taking. Twelve (70.5%) constipated

students didn't take any laxative.

Among the 26 constipated attendants, 12(46.15%) took laxatives, which included husks (19.23%), homeopathic medicines (11.53%), lactulose (3.84%) and Safi (3.84%). Two (7.69%) constipated attendants didn't know the name of the drug they were taking, while 14(53.84%) did not take laxatives at all.

Among the 53 constipated patients, only 5(9.43%) did physical exercise thrice or more in a week, 11 (20.75%) did it sometimes, while the remaining 37(69.81%) never exercised.

Among the 17 constipated students, only 1(5.88%) did physical exercise thrice or more in a week, 11(64.70%) did it sometimes, while 5(29.41%) never did it.

Among the 26 constipated attendants, 6(23.07%) did physical exercise thrice or more in a week, 3(11.53%) did it sometimes, while 18(69.23%) never did it. Table-3 shows the daily fiber intake of the 3 populations.

Discussion

The purpose of the study was to determine the frequency of functional constipation among 3 different populations to get an idea about overall frequency in community. The sampling type was cluster sampling and from each population selected numbers of subjects were chosen depending on the expected frequency in that population. The questionnaire used was Rome III, which has a good reliability (Chronbach's alpha of 0.85 and ICC of 0.85).¹³ The questionnaire required modification in accordance to the variance of study.

Our study showed 53% frequency of functional constipation in hospitalized patients, 52% in their attendants and 34% in medical students, which was quite high when compared to the frequency in other parts of the world. The prevalence of chronic constipation in Singapore was found to be 7.3%,¹⁴ while in USA it was 14.7%.¹⁰ In Pakistan, a survey was done by US Census Bureau, according to which, out of 159,196,336 people, 2,575,234 were constipated; giving a prevalence rate of 1.61% in 2004, as described earlier.⁵ However, we do not have current statistics from Pakistan on functional constipation. Patients and their attendants showed increased frequency, indicating the role of socioeconomic status and mental stress in the causation of constipation. Although, students showed comparatively less frequency, 34% is still a high frequency when compared to other parts of the world. This could be because of limited physical activity amongst medical students because of the increased burden of studies.

Our study showed that the younger age group (18 to 30 year) was most affected from the stressful symptoms of constipation. The reason could be intake of junk food, immobility, professional or academic stress. Junk food is

defined by Larsen as the one containing high amount of saturated fats, salt and sugar, but little or no fruits, vegetables or dietary fiber.¹⁵

It also showed that in hospitalized patients, the prevalence of constipation was considerably higher in females, which is consistent with several studies done in US and Portugal.¹⁶⁻¹⁹ However, among the other two populations, the male to female ratio was found to be almost equal.

According to a study conducted in Berlin, Germany, many constipated patients get relief after adopting a high fiber diet.²⁰ This was confirmed by another study done in many cities of Sweden.²¹ Our study showed that only a minority of constipated individuals prefer to take high fiber diet, while most of them depend on use of laxatives for prompt relief of their symptoms. According to a study conducted in Podova, Italy, one third out of 192 patients observed, needed laxatives at least once every 3 days.²² However, the use of laxatives should be avoided because of their dependency and increased side effects on long term use. People should be advised to exercise regularly, take high fiber diet and increase their daily fluid intake. However, if the problem persists, diagnostic evaluation should be done.²³

Limitations of the study include a self administered questionnaire and the fact that it was done on a selected group of individuals in Karachi, so the results cannot be applied to general population as a whole.

Conclusion

The study concludes that the frequency of constipation was fairly greater in all the three populations studied. Physical inactivity and low fibre intake were prominent risk factors in the constipated individuals.

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